

CLAIMS

1. Method of processing a document available in the form of a set of digital data from first and second categories, characterised in that it consists of producing a first series of digital data (8, 9) from data in the said set by masking the digital data in the second category, producing a second series of digital data (8', 9')

5 the digital data in the second category, producing a second series of digital data (8', 9') from data in the said set by masking the digital data in the first category and using (210) at least one of these two series.

2. Method according to Claim 1, characterised in that it includes a prior step of analysis (6) of said set of digital data in order to classify them in said first or second category.

3. Method according to Claim 1, characterised in that said digital data represent graphical instructions.

4. Method according to Claim 2, characterised in that said digital data represent graphical instructions and analysis step includes the search for open graphical functions (E351), closed graphical functions (E352), functions representing text (E354) and functions representing an image in bitmap mode (E353), and in that it also consists of classifying at least said text functions in said first category and functions representing images in bitmap mode in said second category.

5. Method according to Claim 4, characterised in that said closed and open graphical functions are classified in one or other category according to the dimensions (E355, E357) of the figures which they represent in said document.

6. Method according to Claim 1, characterised in that information corresponding to a low-resolution mode (E360) is grouped together in the first series.

7. Method according to Claims 1, characterised in that information corresponding to a high-resolution mode (E359) is grouped together in the second series.

8. Method according to Claim 3, characterised in that an operation of masking a graphical instruction in one or other series (8, 9 – 8', 9') consists of

rewriting this graphical instruction by modifying at least one colorimetric parameter thereof so as to allocate a colourless representation to said graphical instruction.

9. Method according to Claim 3, characterised in that the aforementioned use consists of printing the graphical instructions in the first series in low-resolution mode and/or printing the graphical instructions in the second series in high-resolution mode.

10. Method according to Claim 9, characterised in that there are created, from the graphical instructions in the two categories, two arrays (T, T') describing respectively at least the same part of a monochromatic component of said document, each cell in an array representing a pixel, a pixel being said to be "switched on" when a printing is provided for at the location designated by the corresponding cell, in that one (T) of the arrays produced from the graphical instructions in the first series contains the switched-on pixels to be reproduced in low resolution and the other array (T'), produced from the graphical instructions in the second series, contains the switched-on pixels to be reproduced in high-resolution, and in that it also consists of reproducing a line in the document by means of the same print head using the information in the two arrays relating to the same line.

11. Method according to Claim 10, characterised in that, in order to print such a line, a relative displacement is caused between the said head and a printing medium at two different speeds, a high speed (V_1) when the pixels to be reproduced are read in the low-resolution array and a low speed (V_2) when the pixels to be reproduced are read in the high-resolution array.

12. Method according to Claim 11, characterised in that it comprises a step consisting of simultaneously printing a group of adjacent lines in low resolution at said high speed (V_1) using a print head with several channels (Figure 4), without relative movement, of the so-called "column" type, perpendicularly to the direction of printing of a line, between said head and said printing medium, using one channel out of two in said print head.

13. Method according to Claim 11, characterised in that it comprises the operations consisting of reading a sub-group of lines (E205) which

are not adjacent in the high-resolution array (T'), spaced apart by a constant number of lines corresponding to a predetermined number of passes in high resolution, simultaneously printing this subgroup in high resolution at said low speed using the corresponding channels of said print head and renewing these operations without relative movement, of the so-called "column" type, between said head and said printing medium perpendicularly to the direction of printing of a line, each time selecting another subgroup until all the channels have been used.

14. Method according to Claim 13, characterised in that it comprises a step consisting of simultaneously printing a group of adjacent lines in low resolution at said high speed (V_1) using a print head with several channels (Figure 4), without relative movement, of the so-called "column" type, perpendicularly to the direction of printing of a line, between said head and said printing medium, using one channel out of two in said print head, in that an aforementioned column relative movement by a value equal to the number of channels in the print head is caused and in that the low-resolution and high-resolution printing operations are renewed.

15. Method according to Claim 14, characterised in that the said low-resolution and high-resolution printing operations are continued until all the information contained in the two arrays has been used.

16. Method according to Claim 10, characterised in that two aforementioned arrays (T , T') are created, with limited capacity less than the capacity necessary for describing said monochromatic component of said document in low resolution and high resolution, respectively, and in that groups of pixels of said monochromatic component representing adjacent bands of said document are entered successively (E117, E127) in these arrays.

17. Method according to Claim 16, characterised in that said document is divided into broadened bands (E113, E123) overlapping, and in that, from corresponding digital data, two enlarged arrays (T , T') are created, allowing a reprocessing of images entailing a modification of the switched-on pixels, in that each array is modified, by applying a known correction algorithm and in that the

printing of the switched-on pixels corresponding to the excess part of each array is excluded.

18. Method according to Claim 10, characterised in that each array of one category is filled from all the graphical instructions describing a part of the document but after having modified those which belong to the other category in order to give them a neutral or colourless printing.

19. Method according to Claim 3, characterised in that the aforementioned operations are preceded by at least one operation (202) of scanning a document and a conversion (203) of this scanning into a succession of 10 aforementioned graphical instructions.

20. Method according to Claim 19, characterised in that a single scanning operation (202) is performed in high-resolution mode.

21. Device for processing a document available in the form of a set of digital data in first and second categories, characterised in that it comprises first 15 means (8,9) for producing, from said set of data, a first series of digital data, including means for masking I said set the digital data in the second category and second means (8',9') for producing, from said set of data, a second series of digital data, including means for masking in said set the digital data in the first category, and means for using (210) at least one of these two series.

22. Device according to Claim 21, characterised in that it has 20 means (8) of analysing said set of digital data, in order to classify said data in said first or second category.

23. Device according to Claim 21, characterised in that said first 25 means (8, 9) are arranged in order to group together in said first category, information corresponding to a low-resolution mode.

24. Device according to Claim 21, characterised in that said second means (8', 9') are arranged in order to group together in said second category, information corresponding to a high-resolution mode.

25. Device according to Claim 21, characterised in that, said digital 30 data being available in the form of graphical instructions, said means for masking graphical instructions in one or other category include means for rewriting such a

graphical instruction by modifying at least one colorimetric parameter thereof, so as to give it a colourless or neutral representation.

26. Device according to Claim 21, characterised in that it has low-resolution printing means (T, 210) controlled from graphical instructions in the first series and high-resolution printing means (T', 210) controlled from graphical instructions in the second series.

27. Device according to Claim 26, characterised in that the low-resolution printing means and the high-resolution printing means include means for creating, from said digital data, two arrays (T, T') describing respectively at least the same part of a monochromatic component of said document, each cell in an array representing a pixel, a pixel being said to be "switched on" when a printing is provided at the location designated by the corresponding cell, in that one of the arrays (T), produced from the graphical instructions in said first series, contains the switched-on pixels to be reproduced in low resolution and the other array (T'), produced from the graphical instructions in the second series, contains the switched-on pixels to be reproduced in high resolution, and in that it also has means for reproducing a line in the document by means of the same print head (313) using the information in the two arrays relating to said line.

28. Device according to Claim 27, characterised in that it has means (302) for causing a relative line movement between said head and a printing medium, at two different speeds, a high speed (V_1) when the pixels to be reproduced are read in the low-resolution array and a low speed (V_2) when the pixels to be reproduced are read in the high-resolution array.

29. Device according to Claim 26, characterised in that it comprises a print head with several channels (Figure 4), in order to print a group of adjacent lines without relative movement, of the so-called "column" type, perpendicularly to the direction of printing of a line between said head and said printing medium, and in that it has means for selecting one channel out of two in said print head, in low-resolution printing mode.

30. Device according to Claim 29, characterised in that it comprises means for reading a subgroup of non-adjacent lines in the high-resolution array

(E202), spaced apart by a constant number of lines corresponding to a predetermined number of passes in high resolution, means for simultaneously printing this subgroup in high resolution at said low speed (V_2) using the corresponding channels in said print head, means for renewing these operations

5 without relative movement, of the so-called "column" type, between said head and said printing medium, perpendicularly to the direction of printing of a line, and means for selecting, each time, another sub-group until all the channels have been used.

31. Device according to Claim 27, characterised in that the

10 aforementioned two arrays (T, T') being of limited capacity less than the capacity necessary for describing said monochromatic component of said document in low resolution and high resolution, respectively, it has means for successively entering (E117, E127) in these arrays groups of pixels of said monochromatic component representing adjacent bands of said document.

15 32. Device according to Claim 31, characterised in that it has means for dividing said document into overlapping broadened bands, means for creating, from corresponding digital data, two enlarged arrays (T, T') allowing a reprocessing of images entailing a modification of the switched-on pixels, each array being modified by applying a known correction algorithm and means for

20 excluding the printing of the switched-on pixels corresponding to the excess part of each array.

33. Device according to Claim 21, characterised in that it is associated with means of scanning (202) a document, equipped with means of converting said scanning into a succession of graphical instructions.

25 34. Method according to Claim 33, characterised in that the scanning means are of the high-resolution type.

35. Device according to Claim 21, characterised in that it includes a computer and a printer.

30 36. Device according to Claim 21, characterised in that it includes a computer and a scanning device.